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ABSTRACT

This study examined the perception that individuals who enter the teaching profession are less academically competent than are those who enter other fields of study. The study investigated differences in students' grade point averages (GPAs) and differences between GPAs earned in English, mathematics, social studies, and science by teacher education students and non-teacher education students. Data for the study came from 1,071 undergraduate teacher education students and 7,176 non-teacher education students enrolled at East Carolina University, North Carolina, in the Fall of 1991. The researcher grouped students by Scholastic Aptitude Test (SAT) scores using 50-point intervals and computed GPAs for each group by SAT interval. Analysis of the data indicated that students who chose teacher education as their major earned a significantly higher overall GPA in general college courses than did non-teacher education majors. Teacher education majors' GPAs were significantly higher in English, science, and mathematics, and there were no significant differences in GPAs in social studies. (Contains 1 table and 5 figures.) (SM)

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ED 428 071

A COMPARISON OF EDUCATION AND NON-EDUCATION MAJORS IN GENERAL COLLEGE COURSES

Open topic: Research

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ABSTRACT

A generally held impression among the public is that teacher education majors are less academically competent than those in other fields of study. The data reported in this study would indicate that this perception is erroneous.

A COMPARISON OF EDUCATION AND NON-EDUCATION MAJORS IN GENERAL COLLEGE COURSES

The past decade has seen education become the "whipping boy" for all of this nation's ills. National reports from the 1983, A Nation At Risk to the 1991 agenda of President Bush, AMERICA 2000, have focused on the academic inadequacy of America's teachers. The perception that individuals who enter the teaching profession are less academically competent than those entering other fields of study appears prevalent among university communities and the public in general. This general impression provided an impetus for this study.

A review of the literature examined several studies comparing the academic performance of education and non-education majors. Matczynski, Siler, McLaughlin, and Smith (1988) summarized the findings of five research studies that "...failed to support the charge that teacher education graduates achieve at an academically inferior level in comparison with other graduates." (p.33). A similar study at the University of Alabama (Johnson & Chissom, 1990) reported that education majors actually had slightly higher grades in general college mathematics and social science courses but lower grades in composition and natural sciences. The following study conducted at East Carolina University attempted to add to the existing body of knowledge.

The Study

The major research questions for this study were:

1. Is there a significant difference between the GPAs earned in general education courses by teacher education students and non-teacher education students?
2. Is there a significant difference between the GPAs earned in English, mathematics, social studies, and science by teacher education students and non-teacher education students?

East Carolina University, a comprehensive university in Eastern North Carolina, has an enrollment of 16,700 students that includes 2700 graduate students. It offers 104 undergraduate and 95 graduate programs, including Ed D., Ph.D. and M.D., degrees. Approximately 1600 undergraduates and 900 graduate students are teacher education majors. All students are required to take general education courses. These courses are referred to as "General College" courses and include the following options in the areas indicated.

Science:	Introduction to Geology
	Introduction to Biology
	Introduction to Chemistry
	Introduction to Physics
Mathematics:	College Algebra
	Basic Concepts of Mathematics
English:	Composition
	Critical Reading and Research
Social Sciences:	Introduction to Anthropology
	Introduction to Geography
	Western Civilization to A.D. 1500
	Western Civilization Since A.D. 1500
	American History to 1877
	American History Since 1877
	Introduction to Political Science
	Introduction to Psychology
	Introduction to Sociology

Students are required to choose two science courses, one mathematics course, both English courses, and four social

sciences courses from the above list. Data were not gathered in the areas of humanities, fine arts, nor health/physical education.

There were 1528 teacher education students (TES) and 8948 non-teacher education students (nonTES) enrolled for Fall 1991. These were undergraduates who had completed their general college English, science, social science, and mathematics requirements. Teacher education students were identified as students who indicated that they wished to be in teacher preparation plus those already admitted into teaching programs. Complete data were available for 1071 TES and 7176 nonTES.

TES and nonTES were grouped by Scholastic Aptitude Test (SAT) scores using 50 point intervals. Grade point averages were computed for each group by each SAT interval, Of the 10,476 students used in this study, 14.5% of them were teacher education majors. Table 1 reports the number of students, TES and nonTES, by SAT increments and the percentage of the population that are TES. SAT scores were not available for 21.3% of all students and 20.5% of teacher education students.

Insert Table 1 about here

Figure 1 is a graph of TES and nonTES mean grade point averages on general college courses. It depicts only means of students for whom SAT scores were available. The GPA mean of the 457 TES for whom no SAT scores were available was 2.67 and for the 1772 nonTES the mean GPA was 2.62

Insert Figure 1 about here

These means for these students were not included in the statistical analysis.

A simple median test was run on the data. The two groups (TES and nonTES) were combined and a grand median GPA was computed. The groups were then separated into their original groups. When chi square with Yeats' correction was applied the obtained $\chi^2 = 7.77$ was significant at the .005 level.

Figures 2 through 5 show the mean grade point averages by SAT interval for TES and nonTES in English, science, mathematics and social studies courses. In Figures 2 and 4, no TES means are reported for the 1299+ SAT interval. This omission occurs because all TES had placed out of the General College English and Math courses.

Insert Figures 2 - 5 about here

A sign test was used to determine if there was a significant difference in the mean scores between TES and nonTES in each of the general college areas: English, mathematics, science, and social studies. After the sign test was applied, the critical value for each of the areas was taken from a Table of Binominal Probabilities (Walker & Lev, 1953). The results showed that TES mean grade point averages were significantly higher in English ($p<.002$, sign test), science ($p<.001$, sign test), and mathematics

($p<.001$, sign test). There was no statistically significant difference between the groups in social studies.

Limitations

There are two limitations to this study. East Carolina University is a regional institution and the mean SAT score for entering students is 899. Thus, one can not generalize this information to institutions with higher SAT scores. Secondly, scores were not available for 20.5% of the TES and 20% of the nonTES. Even though the mean GPA for the "not available" group of TES was higher than the mean GPA for the nonTES "not available" group,the results may have been different if those scores had been distributed across the 14 SAT intervals.

Conclusions

Much of the criticism directed at the teaching profession is based on the premise that teachers are less academically gifted than students entering other professions. This assumption is often based on SAT scores for teacher education students as compared to students in other majors. This study was conducted to compare the grade point averages earned be teacher education students and non-teacher education students in General Education course.

The results of this study report that students, who choose teacher education as their major, earn a significantly higher overall grade point average in general college courses than do non-teacher education majors. When grade point averages were compared by subject areas, TES' grade point averages were significantly higher in English, science, and mathematics. No

statistically significant difference was report in social studies.

This study supports the results of other studies which conclude that knowledgeable and academically competent people are choosing teacher preparation as a major. Other institutions, particularly those who attract a majority of students with SAT scores above 1000, should investigate the comparitive competence of their teacher education majors. These studies would add another dimension to the body of knowledge in this area and provide insight into each individual university's teacher education undergraduate population.

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NUMBER AND PERCENT OF EDUCATION AND NON-EDUCATION MAJORS

TABLE 1

SAT Intervals	# Education Majors	# Non-Education Majors	# Totals	% of Teacher Education Majors
Above 1299	3	17	20	15.1
1250-1299	4	29	33	12.1
1200-1249	9	64	73	12.3
1150-1199	12	101	113	10.6
1100-1149	30	203	233	12.8
1050-1099	41	280	321	12.8
1000-1049	80	483	563	14.2
950- 999	87	698	785	11.1
900- 949	134	942	1076	12.5
850- 899	126	1068	1194	10.5
800- 849	177	1149	1325	13.3
Below 800	368	2142	2510	14.6
TOTAL STUDENTS	1071	7176	8247	12.9

Figure 2: ECU Teacher Education Students' $\bar{x}$ GPA and Non-Teacher Education ECU Students' $\bar{x}$ GPA on General College English Courses by SAT

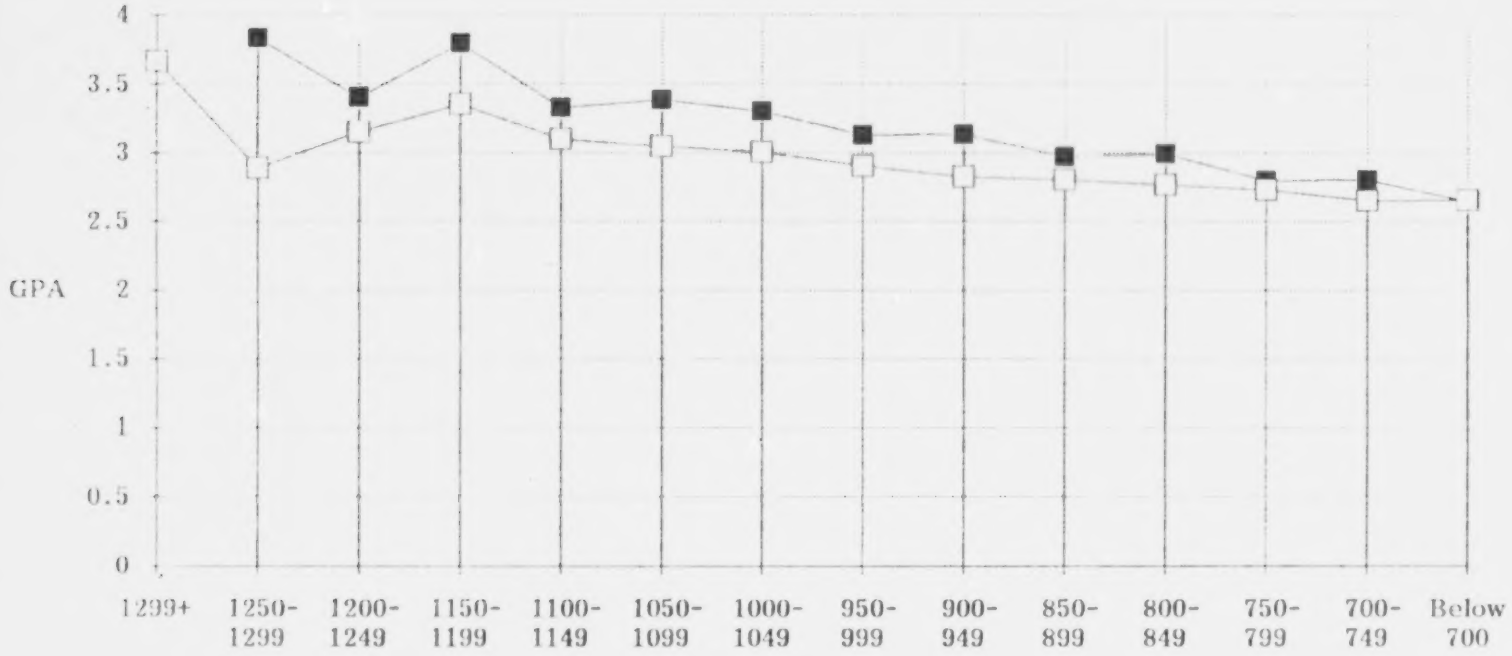


Figure 1: ECU Teacher Education Students' $\bar{x}$ GPA and Non-Teacher Education ECU Students' $\bar{x}$ GPA on General College Courses by SAT

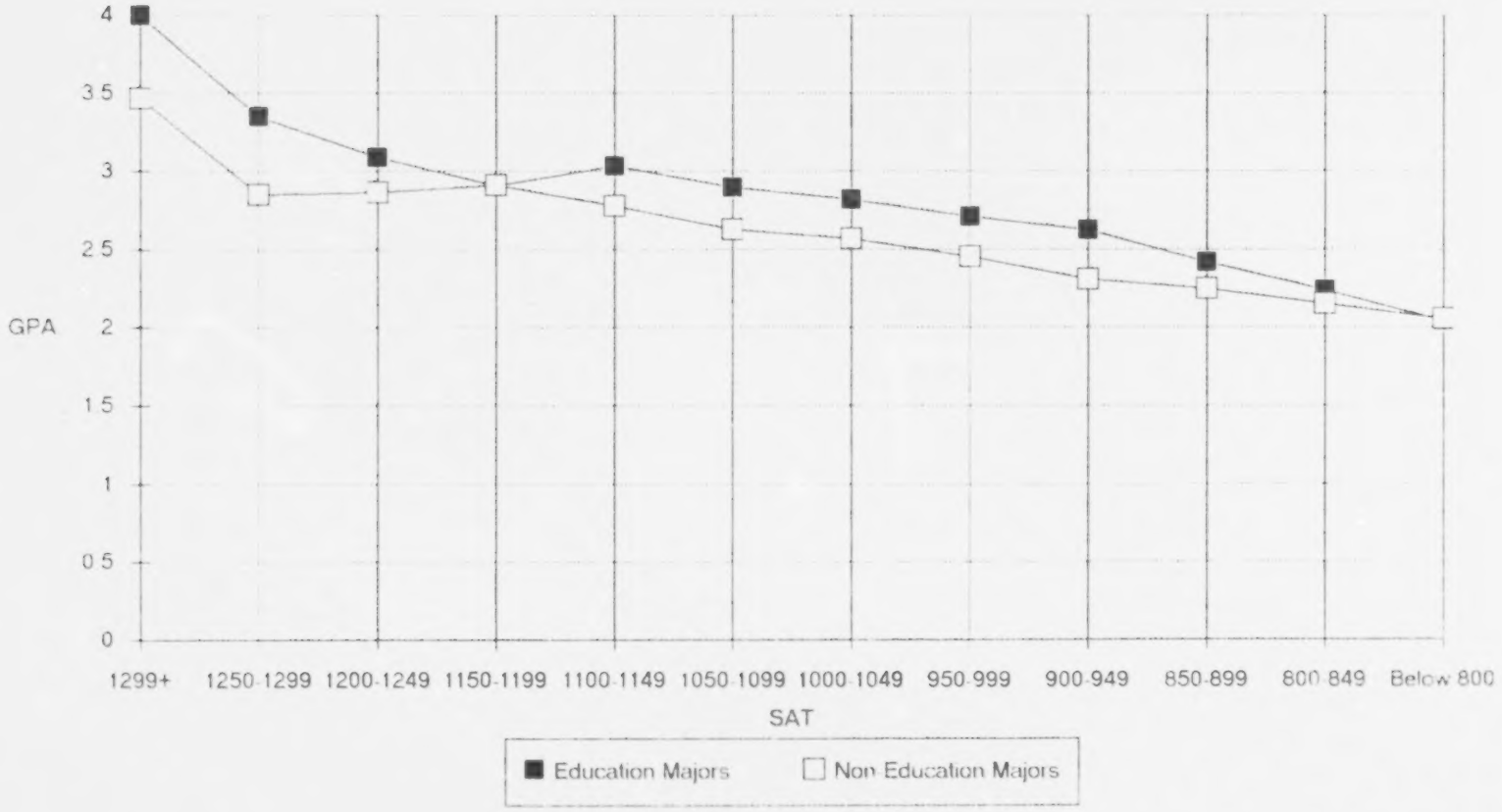
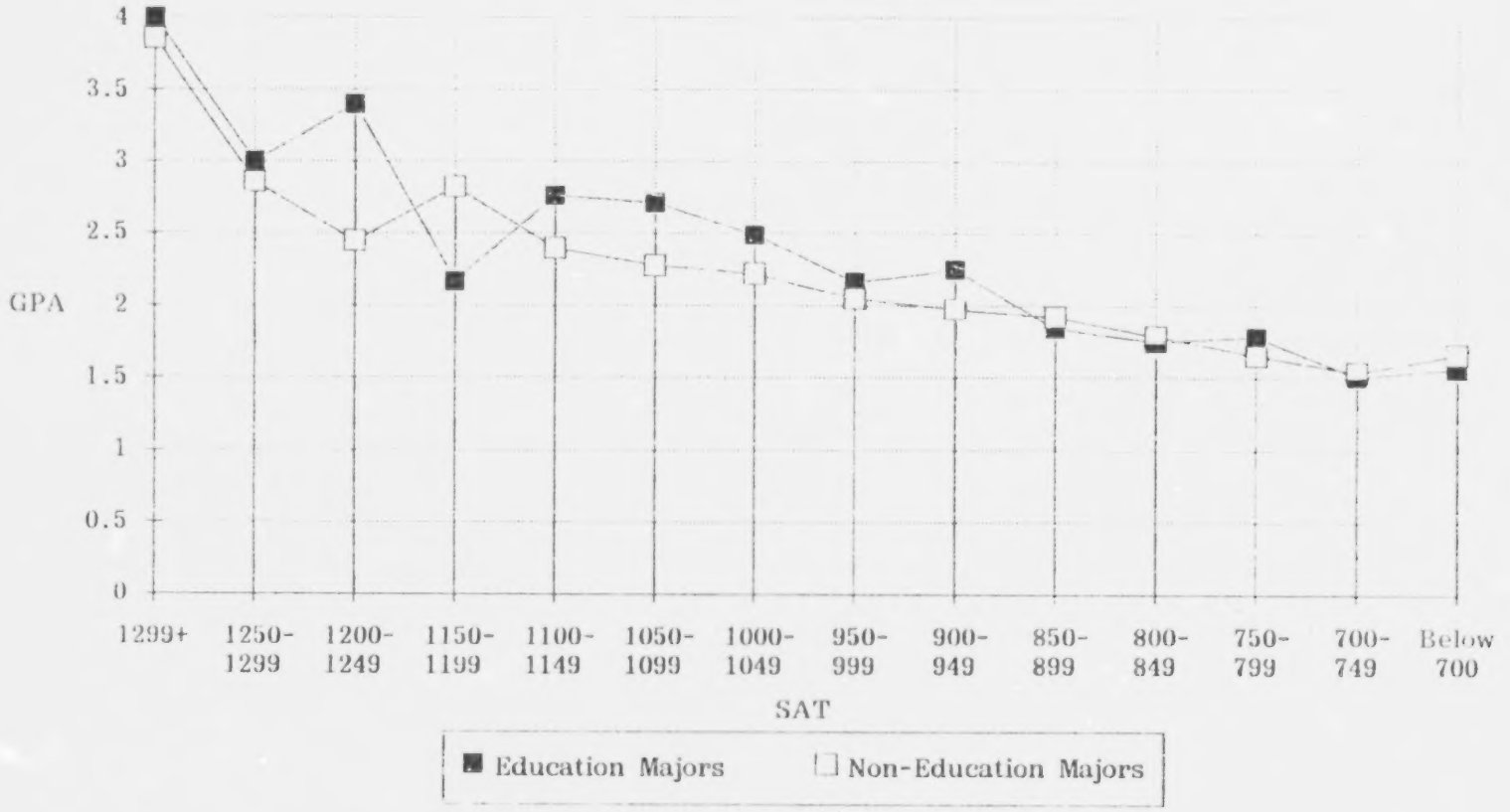
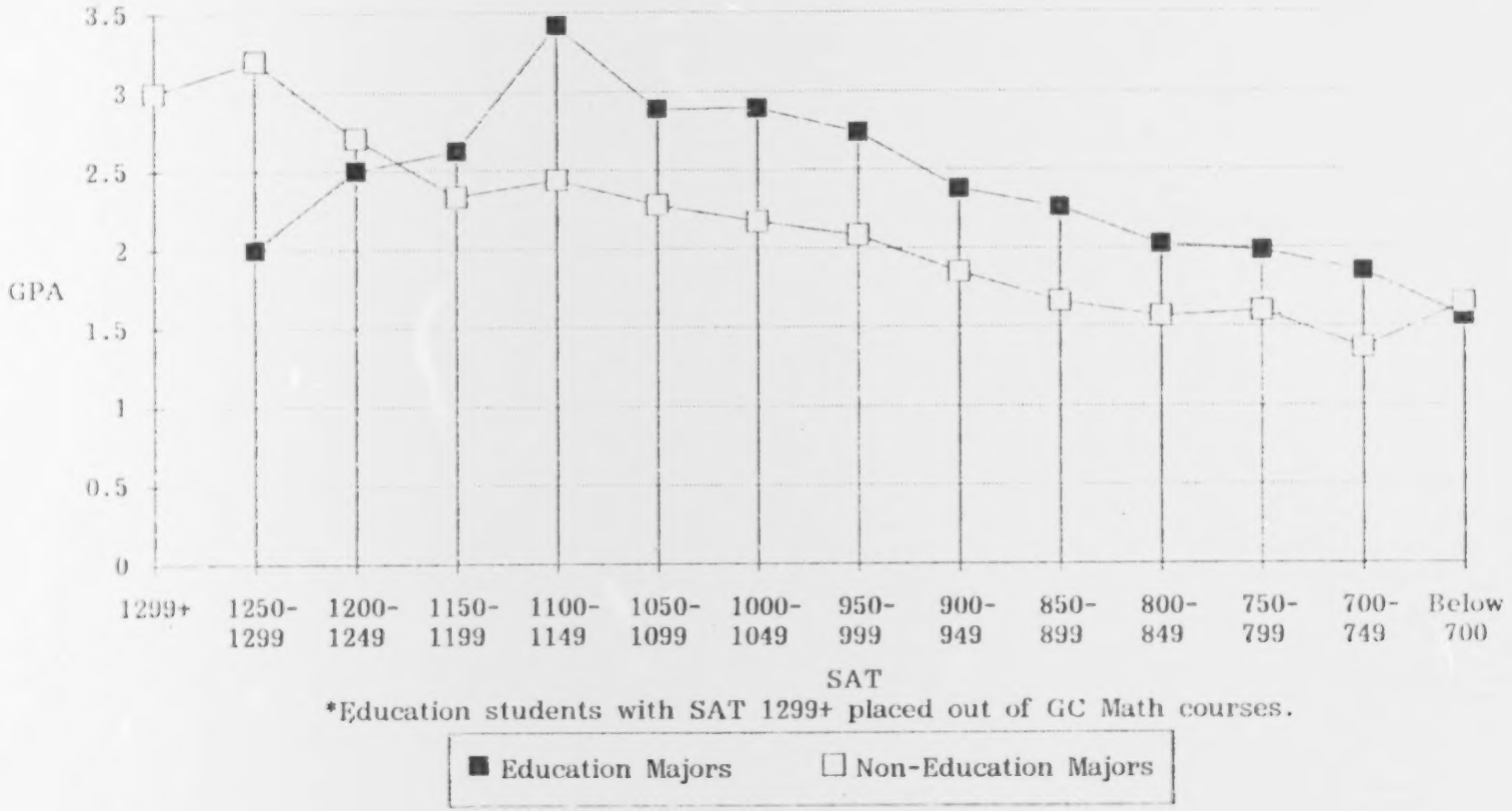


Figure 3: ECU Teacher Education Students' $\bar{x}$ GPA and Non-Teacher Education ECU Students' $\bar{x}$ GPA on General College Science Courses by SAT



61

Figure 4: ECU Teacher Education Students' x GPA and Non-Teacher Education ECU Students' x GPA on General College Math Courses by SAT



*Education students with SAT 1299+ placed out of GC Math courses.

Figure 5: ECU Teacher Education Students' $\bar{x}$ GPA and Non-Teacher Education ECU Students' $\bar{x}$ GPA on General College Social Science Courses by SAT